FACT SHEET

(Pursuant to Nevada Administrative Code (NAC) 445A.401)

Permittee Name: Decommissioning Services LLC

Site Name: Goldfield Project

Permit Number: NEV0060027

Review Type/Year/Revision: Renewal 2016, Fact Sheet Revision 00

A. <u>Location and General Description</u>

Location: The facility is located in Esmeralda County, within Sections 25, 35 and 36, Township 2 South (T2S), Range 42 East (R42E); Sections 19 and 20, T2S, R43E; and Sections 1 and 2, T3S, R42E, Mount Diablo Baseline and Meridian, approximately one-half mile north of the town of Goldfield, Nevada.

General Description: Mining operations and all closure activities have been completed; post-closure monitoring of the site has been ongoing since October 2002.

The facility consists of a 22-acre heap leach pad, three open pits (Jumbo, Combination, and Red Top), one backfilled pit (Sheet-Ish), one waste rock dump, two evaporation cells, and associated structures and roads.

The Project is located on both private and public lands. The Project encompasses approximately 242 acres, of which 174 acres are on private land and the remaining 68 acres are on unpatented mining claims administered by the U.S. Bureau of Land Management, Battle Mountain District, Tonopah Field Office. The heap and process ponds are located on public land; the waste rock dump and pits are on private land. The Project is in post-closure monitoring status.

B. Synopsis

The Goldfield Mine is located within the historic Goldfield Mining District. Mining of the historic waste rock dumps began in 1989 by the Red Rock Mining Corporation. The operation was shut down in 1990 and sold to First Toronto Corporation. First Toronto placed the property into the assets of Giant Pacific which then reorganized as Red Rock Mining Inc. In 1991, American Resource Corporation (ARC) and Red Rock Mining Inc. entered into a 50/50 joint venture agreement to place the Goldfield Mine property into production.

ARC then acquired a 78% interest in American Pacific Minerals, Ltd, (APML), formerly Red Rock Mining Inc., and became the operator of the Goldfield Project.

In December 1995, ARC sold its interest to APML. APML then owned, through its subsidiary APM USA, 100% of the Goldfield Mine.

In connection with the reorganization and sale, ARC entered into an Operator and Service Agreement with APM USA in which ARC agreed to manage the Goldfield Mine. In 1996, ARC merged with Rae Gold with ARC continuing as mine operator. In June 1998, financial problems led to the forced bankruptcy of ARC and Rea Gold. In October 1998, through the bankruptcy court, Decommissioning Services LLC (DSL) was granted the mine purchase and continues to be the Permittee and manage the site.

The first Water Pollution Control (WPC) Permit was issued to Red Rock Mining, Inc in December 1990. The Permit expired in November 1995 and was renewed to APM USA in August 1997. Following receipt and approval of the Final Closure Report from DSL on 31 October 2002, the site was placed in a post-closure monitoring status and renewed in May 2006. The Permit expired 10 May 2011 and was renewed in 2016.

Geology:

Waste rock includes the Siebert Tuff unit, which consists of sedimentary breccia, volcanic conglomerate and sandstone, and tuffaceous conglomerate, sandstone and shale, comprised of locally derived porphyritic rhyodacite and andesite.

During active mining, composite samples were collected from each pit, to include both ore and waste rock, and subjected to acid-base accounting (ABA) analysis and humidity cell testing (HCT); these tests indicated that sulfides were present in both the ore and waste rock.

Pits:

Ore and waste was mined from four separate pits, the Sheet-Ish, Combination, Red Top and Jumbo pits. These pits are located in the Goldfield historical mining district. Three pits remain as open pits while the Sheet-Ish Pit has been backfilled and regraded.

Until winter 2014, stormwater was reporting directly to the Jumbo Pit and flowing into an open shaft located at the bottom of the pit. In August 2010, a work plan was submitted for the construction of Jumbo Pit stormwater diversion channel. The Nevada Division of Environmental Protection (Division) approved the work plan in March 2012 and the Permittee completed construction in January 2015.

In December 2014, DSL reconstructed the stormwater diversion channel that routes meteoric water around the open pits. This diversion channel begins approximately 200 yards southeast of the Jumbo Pit and follows the natural drainage northeast of the Combination Pit and

ultimately discharges to the valley approximately 300 yards north of the evaporation cells. This diversion channel was designed to withstand a 24-hour (hr)/500-year (yr) storm event.

Table 1 below provides approximate pit dimensions.

Table 1. – Approximate Goldfield Project Open Pit Dimensions

Pit	Length, feet	Width, feet	Acres
Combination	850	775	15.1
Jumbo	1000	350	7.9
Red Top	1525	700	24.9

None of the pits intercepted the groundwater table and no dewatering of the pits was required during active mining.

Closure monitoring of the Combination, Red Top and Jumbo pits requires an annual inspection (2nd Quarter) of the pits for ponded water, and, if ponded water is present, to take a field pH, field specific conductance, photos, and a water quality sample (Profile III). The Permittee is also required to inspect annually (2nd Quarter) all pits for surface run-on controls, stability, safety and access restriction.

During the 2014 and 2015 site inspections, a small pit lake was noted in the Red Top Pit. A sample of this solution, collected in Fall 2014, indicated exceedances of the Division Profile III reference values for pH, aluminum, arsenic, cadmium, chromium, copper, fluoride, lead, selenium, thallium, total dissolved solids, vanadium, and zinc. This pit lake does not appear to be persistent; however, since the accumulated water has the potential to degrade waters of the State, the Division is requiring the construction of stormwater sumps in the higher reaches of the pit to minimize stormwater flows from reaching the pit bottom.

A work plan for the construction of dikes and swales, specifically a series of impoundment dikes in the Red Top Pit and drainage swales at the Combination Pit, was submitted in January 2016. The concept was approved by the Division in June 2016 with the requirement to submit an Engineering Design Change (EDC) application. The EDC was submitted and approved by the Division in July 2016.

Waste Rock Dump:

The site consists of a single main waste rock dump - the Red Top dump. This dump contains approximately 5,500,000 tons of material. Because known sulfide waste was being excavated and relocated into this waste rock dump, a waste rock management plan was put into place. This plan involved the encapsulation of the highly acid-generating material in the interior of the dump with less acid-generating material being placed at the edges of the dump.

Studies concluded that the majority of the meteoric water received by the site during the winter months would be consumed by evapotranspiration and/or sublimation or would flow off the surface. No drainage through the main waste dump is expected. To date, no discharge or drainage from the waste dump has been noted.

The Permittee is required annually (spring) to inspect the waste rock dump for physical stability and, should seepage be present from any portion of the waste rock dump, take a field pH, field specific conductance, photos and a water quality sample (Profile I).

Site Closure Plan:

The Final Plan for Permanent Closure (FPPC) was approved by the Division in April 1999. The FPPC involved upgrading the former event pond to a double-lined pond and then converting it into a long-term heap draindown evaporation pond (e-pond). Following approval of an amendment to the FPPC in 2005, a second e-pond was constructed. The heap and the e-ponds are the only remaining beneficiation process components. The metal process plant building, a wood-framed shop building and several shipping containers were integrated into warehouse storage and will remain. Additionally, a small above-ground fuel tank and pump, contained within a bermed and high-density polyethylene (HDPE)-lined area, will remain. These remaining structures are located on private land and are the property of Gemfield Resources, Ltd.

Heap Leach Pad:

Approximately 1,800,000 tons of ore were processed on the single heap leach pad. Material was mined from the four open pits and historic waste dumps. The heap contains three cells. All ore placed on the pad was crushed, ranging from 3/8 inch to 3 inch diameter, with approximately 1,300,000 tons agglomerated with 10-15 pounds (lbs.)/ton cement and the last 500,000 tons agglomerated using lime and Betz non-ionic polymer at rates of 16 lbs./ton and 0.5 lbs./ton, respectively.

The three cells were designated as Pads A, B and C. Both Pads A and B were constructed using 30-mil polyvinyl chloride (PVC) as the primary liner. Pad C was constructed using 60-

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mil HDPE as its primary liner. Pads A and B contain interior PVC liners above the primary liner. Pads A and B do not have leak detection systems.

Additional details are provided below:

Pad A – In addition to the primary liner, this leach pad has up to five interior liners located above the primary liner and it is not known if they are connected in the interior of the pad. The estimated volume of the ore is 130,000 tons.

Pad B – This leach pad has one additional interior liner, located approximately 30 feet above the primary liner. This additional 30-mil PVC liner is mechanically connected to the 60-mil HDPE liner of Pad C. The estimated volume of ore is 450,000 tons.

Pad C – This leach pad is constructed using one continuous 60- mil HDPE primary liner, with the surface of the pad being bowl-shaped. It is connected to the intermediate liner of Pad B. The pad sub-base was constructed using compacted Columbia Tails. The pad liner is a combination of compacted soils and synthetic membrane. A leak detection and solution recovery system, comprised of a grid of HDPE net and geotextile that drains by gravity to a sump, is between these liners. The estimated volume of ore is 1,220,000 tons. The leak detection system remains functional and dry as of 2016.

The heap was closed in 1999, covered with a nominal 12-inch thick clay cap and nominal 12-inch thick topsoil cover. Heap leach draindown currently reports to an evaporation pond that was constructed in the location of the storm event pond. The draindown rate, as of October 2015, is approximately 0.029 gallons per minute (gpm). The long-term steady state flowrate was modeled to be less than 0.5 gpm after 10 years.

Heap draindown chemistry has been sampled and analyzed since heap closure (1999). Review of this data indicates consistently increasing concentrations of various constituents including aluminum, cadmium, chloride, copper, fluoride, iron, magnesium, manganese, nickel, nitrate+nitrite, selenium, sulfate, TDS, and zinc; these increases coincide with decreasing flow. These data, taken on a mass-loading basis, represent a fairly consistent discharge. Effluent pH is consistently in the 3.9-4.3 standard units (SU) range indicating the acidic nature of the heap material. The following table provides a listing of the parameters that are either of interest or exceed Division Profile I reference values. Table 2 below provides average concentrations and ranges for the heap leach pad draindown (50 sampling events – March 1999 thru October 2015). Average solution concentrations are based on an average of all available analyses.

Table 2 - Average Concentration and Range of Heap Leach Pad Draindown

Parameter	Division Profile I Reference Values (mg/L, except as noted)	Average Concentration and (Range) (mg/L, except as noted)	
Alkalinity, HCO ₃		1.8 (<1 – 2)	
Aluminum	0.2	113 (6.96 – 210)	
Antimony	0.006	0.026 (0.008 – 0.051)	
Arsenic	0.010	0.020 (0.01 – 0.039)	
Beryllium	0.004	$0.010 \\ (0.005 - 0.020)$	
Cadmium	0.005	0.156 (0.021 – 0.29)	
Chloride	400	960 (730 – 1,700)	
Copper	1.0	30 (3.2 – 49)	
Fluoride	4.0	5.83 (0.1 – 11)	
Iron	0.6	0.45 (0.081 – 1.7)	
Manganese	0.10	19.1 (3.3 – 28)	
Mercury	0.002	0.0006 (0.0001 – 0.003)	
Nitrate + Nitrite (as N)	10	160 (96 – 280)	
pH (SU)	6.5 – 8.5	4.3 (3.9 – 7.0)	
Selenium	0.05	0.38 (0.26 – 0.62)	
Sulfate	500	4,355 (2,820 – 5,300)	
Thallium	0.002	0.022 (0.001 – 0.14)	
Total Dissolved Solids	1,000	8,180 (5,140 – 11,000)	
Zinc	5.0	25.8 (2.5 – 39)	

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Post-closure monitoring of the heap leach facility consists of semi-annual sampling and analysis of the draindown solution for Division Profile I parameters with acidity and flowrate. The Permittee is also required to monitor the leach pad leak detection sump. At this time, weak-acid dissociable (WAD) cyanide analysis is not required; however, if the draindown solution pH increases to greater than 7 SU, the Permittee will be required to begin analysis for WAD cyanide.

Process Ponds:

There were a total of four ponds on site – the precipitation, barren, pregnant and storm event ponds. The precipitation pond was closed in-place in early 2001 by folding the liner in on itself and placing topsoil over the entire area. The barren and pregnant ponds, both of which contained significant amounts of sludge, were sampled and closed in place by year-end 2001. Closure consisted of placement of a clay cap overlain by topsoil and geomembrane liner. All ponds, with the exception of the storm event pond, had leak detection systems which consisted of gravel filled sumps. All leak detection systems were closed and covered during closure activities.

The original storm event pond was constructed by placing 60-mil HDPE liner over a native compacted engineered sub-base of fine soil (clay). During closure activities, which occurred in 2002, the embankment of the storm event pond was decreased by 6 feet and backfilled and a small double-lined evaporation pond (e-pond) with dual leak detection was constructed. During construction of the e-pond, the upper 60-mil liner was leak tested, the leak detection system was installed and a new 40-mil HDPE primary liner was installed. The leak detection system (e-pond 1 – upper) is comprised of a laterally-permeable geogrid and a 1 ½-inch diameter inspection port terminating at the pond berm. Additionally, a second 1 ½-inch diameter inspection port (e-pond 1 – lower) was installed below the bottom liner, terminating approximately 1 to 2 feet below the clay liner. To date, neither leak detection port has indicated leakage. As backfilling of the e-pond commenced, a 4-inch diameter piezometer was installed to collect and monitor solution levels and chemistry, as necessary.

Since closure of the heap in 1999, draindown flowrate has decreased from approximately 1 gpm to 0.029 gpm. Since October 2004, draindown has been discharging to the e-pond. Prior to this, for approximately 3 years, from October 2001 thru October 2004, draindown solution was discharged directly to the City of Goldfield sewer system. This practice was terminated when the City of Goldfield sewer Permit underwent renewal and it was determined by the Division - Bureau of Water Pollution Control that Goldfield could not accept industrial waste disposal into their system (open facultative ponds). As a result, DSL has since constructed a second e-pond designed such that solution can flow between the two e-ponds.

In 2005, the second e-pond was constructed as a double-lined pond with leak detection and consists of a 30-mil PVC liner overlain by 45-mil UV-stable reinforced polypropylene (PPR) liner. The pond will remain open, i.e., — no backfill, to allow the operator to monitor the pond's functionality. Once the operator determines the pond is functioning as designed, infiltration galleries and a piezometer will be installed and the pond will be backfilled with gravel.

In February 2010, the Permittee noted leakage reporting to leak detection sump, but leakage rates were well below Permit limits. However, the Permittee evacuated and sampled, for a Division Profile I analytical suite, the solution contained within the sump and continued to monitor for solution collection while also developing a work plan to address the repair of the primary pond liner. The plan entailed allowing for the natural evaporation of solution contained above the primary liner, complete inspection of the primary liner and repair of any holes or tears that may be discovered. All repairs were completed prior to the submittal of the October 2010 EDC.

In October 2010, an EDC was submitted, and subsequently approved by the Division in November 2010, for the modification of the overflow channel between e-ponds 1 and 2. The modifications were completed in January 2011. Specifically, the modification entailed the replacement of the existing 10-inch diameter pipe with two 4-inch diameter corrugated drain pipes and the raising of the existing dike by approximately 12 inches to increase the available volume of e-pond 1 and allow overflow from e-pond 1 to e-pond 2.

Additionally, the entire ditch connecting e-pond 1 to both e-pond 2 and the primary liner of e-pond 2 was covered with a 12-inch layer of fine sand to protect the liner material.

Monitoring of the long-term solution management system shall consist of semi-annual inspections of leak detection ports and piezometers related to the two e-cells.

C. Receiving Water Characteristics

The mine facilities are located in an area of extensive historic underground mining disturbance. Surface water resources in the Project vicinity are extremely limited and there are no known surface waters within 5 miles of the site. The average annual precipitation at the mine site is 6.5 inches per year and the average pan evaporation is approximately 70 inches per year.

The regional groundwater system exists at a depth of approximately 450 feet below the surface and lies in highly mineralized material. Groundwater feasibility studies, based on samplings of shafts by the Southern Pacific Land Company in 1984, indicated a depth to water of approximately 450 feet below ground surface (bgs). These shafts, the Laguna, Silver Pick, and Grizzly Bear are located 4,500 feet southeast (SE), 4,000 feet SE and 9,250 feet SE, respectively, of the Project site. Emission spectrographic results indicated high concentrations of copper, manganese, zinc, and cobalt, an average pH of 2.5, and total

dissolved solids (TDS) of 2,300 mg/L.

Within the heap leach pad/process area, the regional ground water table was not intercepted, despite exploration/condemnation drill holes to a depth of 340 feet bgs. However, a shallow local groundwater zone (perched zone) exists beneath the site from 15 to 65 feet bgs. In general, this perched zone meets Division Profile I reference values.

The site's two production wells are located approximately 1,500 feet northeast (hydrologically downgradient) of the heap/process facility. Due to the first well producing insufficient water, only the second well was utilized. Water quality was monitored sporadically from 1993 to 1999 and use of the wells ceased in 1999. No current water quality data is available. Depth to groundwater ranges from 36 feet to 101 feet bgs.

There are a total of seven shallow monitoring wells located around the heap/process area. These wells, in conjunction with topographic surveys, were used to determine groundwater flow direction. Inspection of the contour data indicated that groundwater flows in a southwest to northeast direction. Four of these wells will be monitored in post-closure. MW-1 and MW-6 will provide background data while MW-3 and MW-7 are site downgradient wells.

Table 3 – Site Shallow Monitoring Well Data

Monitor Well	Total Depth,	Depth to	Screen	Location Relative
I.D.	Feet bgs	Water, Feet	Interval, Feet	to Components
		bgs	bgs	
MW-1	100	42	80 - 100	Upgradient
MW-3	100	11 – 14	80 - 100	Downgradient
MW-6	85	60 – 64	55 - 85	Upgradient
MW-7	77	21 - 22	47 – 77	Downgradient

Table 4 below provides a listing of the key parameters that are of interest or exceed Division Profile I reference values. Table 4 provides average concentrations and ranges for the heap leach pad draindown (50 sampling events – March 1999 thru October 2015), production well (5 sampling events – February 1993 thru February 1999), and monitor wells MW-1, -3, -6, and -7 (56 sampling events – June 1996 thru May 2016). Average solution concentrations are based on an average of all available analyses.

Table 4 – Comparison of Select Heap Leach Draindown and Groundwater Constituents

	Aluminum (mg/L)	Arsenic (mg/L)	Chloride (mg/L)	TDS (mg/L)
Reference Value	0.2	0.010	400	1,000
HLPDD	112	0.020	960	8,180
	(69-210)	(0.01 - 0.039)	(730-1,700)	(5,145-11,000)
Production Well	$0.47 \\ (0.06 - 0.88)$	0.046 (0.030 - 0.065)	425 (273 – 560)	2,090 (1,800 – 2,355)
MW-1	0.13	0.021	294	762
	(0.05 - 0.53)	(0.019 - 0.023)	(350-310)	(635-970)
MW-3	0.12	0.026	310	890
	(0.03 - 0.33)	(0.020 - 0.038)	(180-390)	(283-1,050)
MW-6	3.60	0.053	86	375
	(0.04 - 27)	(0.02 - 0.24)	(57-100)	(324-440)
MW-7	0.102	0.019	464	1,170
	(0.03 - 0.47)	(0.018 - 0.021)	(450-530)	(968-1,480)

As can be seen from Table 4, all monitoring wells indicate naturally elevated arsenic and aluminum concentrations. Although chloride and TDS concentrations in well MW-7 are above the Profile I reference values, based on water quality data beginning at installation in the early 1990s, these concentration levels are stable, indicating that there is no leakage occurring from the heap leach pad, which would otherwise be considered a potential source of these constituents. This is further corroborated by the production well water quality, which exhibits similar constituent concentrations.

All four monitoring wells will be sampled on a semi-annual (twice a year) basis for field pH, field specific conductance and depth to groundwater. Additionally, the operator will provide a Division Profile 1 analysis from each well annually.

D. Procedures for Public Comment

The Notice of the Division's intent to issue a Permit authorizing the facility to construct, operate, and close, subject to the conditions within the Permit, is being sent to the <u>Central</u> Nevada Newspaper/Tonopah Times-Bonanza and Goldfield News in Tonopah for

publication. The Notice is being mailed to interested persons on the Bureau of Mining Regulation and Reclamation mailing list. Anyone wishing to comment on the proposed Permit can do so in writing within a period of 30 days following the date of public notice. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected intrastate agency, or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.403 through NAC 445A.406.

E. Proposed Determination

The Division has made the tentative determination to issue the renewed the Permit.

F. Proposed Limitations, Schedule of Compliance, Monitoring, Special Conditions

See Section I of the Permit.

G. Rationale for Permit Requirements

Although the shallow groundwater regime immediately beneath the heap/process area appears to be a localized perched zone, the fact that the site production wells utilized this zone indicates that this shallow zone is usable groundwater. Therefore, this zone shall be protected and long-term heap draindown chemistry shall not be allowed to degrade this groundwater. As such, the Division concludes that long-term heap draindown shall remain on containment (zero-discharge) via the e-Cells.

The facility is located in an area where annual evaporation is greater than annual precipitation. Therefore, it must operate under a standard of performance which authorizes no discharge(s) except for those accumulations resulting from a storm event beyond that required by design for containment.

The primary method for identification of escaping process solution will be placed on required routine monitoring of leak detection systems as well as routine sampling of monitoring wells. Specific monitoring requirements can be found in the Water Pollution Control Permit.

H. Federal Migratory Bird Treaty Act

Under the Federal Migratory Bird Treaty Act, 16 U.S. Code 701-718, it is unlawful to kill migratory birds without license or Permit, and no Permits are issued to take migratory birds using toxic ponds. The Federal list of migratory birds (50 Code of Federal Regulations 10, 15 April 1985) includes nearly every bird species found in the State of Nevada. The U.S. Fish and Wildlife Service is authorized to enforce the prevention of migratory bird mortalities at ponds and tailings impoundments. Compliance with State Permits may not be adequate to ensure protection of migratory birds for compliance with provisions of Federal statutes to protect wildlife.

Open waters attract migratory waterfowl and other avian species. High mortality rates of birds have resulted from contact with toxic ponds at operations utilizing toxic substances. The Service is aware of two approaches that are available to prevent migratory bird mortality: 1) physical isolation of toxic water bodies through barriers (e.g., by covering with netting), and 2) chemical detoxification. These approaches may be facilitated by minimizing the extent of the toxic water. Methods which attempt to make uncovered ponds unattractive to wildlife are not always effective. Contact the U.S. Fish and Wildlife Service at 1340 Financial Boulevard, Suite 234, Reno, Nevada 89502-7147, (775) 861-6300, for additional information.

Written by: Karl W. McCrea Date: 27 October 2016

Revision 00: Renewal; effective XX December 2016